RHIC - Tracking Studies with Real Magnets in Real Places[*], G.F. DELL, F. PILAT, BNL - Some RHIC magnets have been measured cold, some have been measured at room temperature, and others have not been measured or assigned locations in RHIC. A filter program has been used to process existing Teapot files and insert measured values of multipoles in magnets that were measured cold, insert values corrected by the warm cold correlations in magnets that were measured warm, and use randomly generated multipoles in magnet locations for which no data exists. The file containing real multipoles is then reread by Teapot and corrections for closed orbit errors, chromaticity, and tune are made. We also describe a more general way to correlate real magnets to real places, which reads the magnet data structures directly and generates a representation of RHIC in the Standard Machine Format developed for the C^{++} version of the Teapot. Dependence of tune and dynamic aperture on momentum and initial action at injection and storage are reported.

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